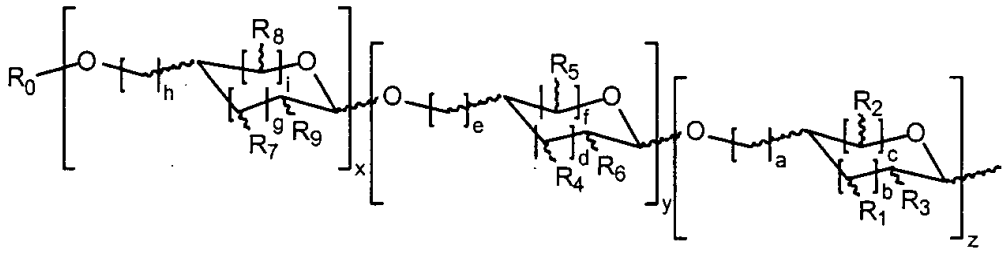
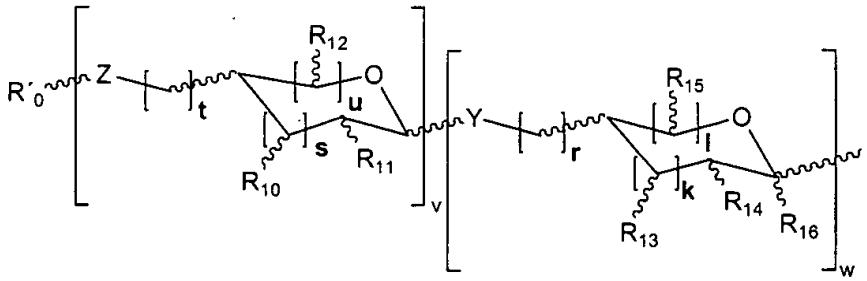
REMARKS

Additions of Claims:

In an effort to present the claims in logical order, claims 27-32 and 39 have been canceled, and the corresponding subject matter has been reintroduced in newly added claims 56-98. The claims have been amended in order to more clearly set forth what is intended as Applicants' invention or to expedite prosecution. Applicants submit that these amendments are fully supported by the specification and that no new matter is added with these amendments and additions. Specifically, claims 56 and 57 find support *inter alia* in original claim 27, and throughout the specification. Claims 56 and 57 include the provisos (i) with respect to the following carbohydrate domain:



that *the x, y and z bracketed structures represent furanose or pyranose moieties, whereby the sum of b and c is 1 or 2 , the sum of d and f is 1 or 2, and the sum of g and i is 1 or 2;* and (ii), with respect to the following saccharide moiety:



that *the v and w bracketed structures represent furanose or pyranose moieties and the sum of l and k is 1 or 2, and the sum of s and u is 1 or 2, and with the proviso that v and w are not simultaneously 0.* Support for such language can be found throughout the specification and Figures where glycopeptides having carbohydrate domains independently comprised of 5- or 6-membered rings (furanose or pyranose moieties) are disclosed. Claims 56 and 57 also include language specifying that substituents R_1-R_{15} can be NHR^i (or NHR^{iii}), where R^i (or R^{iii}), in addition to the groups originally listed, can also be an acyl moiety (as opposed to NH_2 as recited in original claim

27). Support for such language can be found throughout the specification and drawings where several of the carbohydrate moieties are substituted with -NHAc groups. In addition, claims 56 and 57 include language to distinguish the terminal substituents R_0 and R'_0 on each of the recited carbohydrate moieties, which substituents may be the same or different.

Claims 58-60 and 70-71 find support throughout the specification, for example on page 39 lines 19-22 where it is recited that in certain embodiments, the carbohydrate antigen is linked to an effective carrier either directly or through a crosslinker, which carrier is a protein or lipid. The specification also specifies that the carrier protein may be bovine serine albumin, polylysine or KLH (*i.e.*, keyhole limpet hemocyanin), and the lipid may be PamCys (*i.e.*, tripalmitoyl-S-glycerylcysteinylserine).

Claim 61 finds support on pages 7-9 of the specification where methods for the preparation of certain glycoaminoacids and their subsequent use to generate the glycopeptides of the invention and synthetic constructs thereof are described.

Claim 62 finds support *inter alia* in original claim 28 and includes the possibility that m be 4. Support for such language can be found in the specification, for example on page 33 lines 20-24, where it is recited that the multi-antigenic glycopeptides of the invention may comprise a peptidic backbone made up of at least three glycoaminoacids. In addition, claim 62 encompasses constructs where the glycopeptides of the invention are linked to the carrier through a linker moiety or a linker-crosslinker moiety. Support for the glycopeptide-linker-carrier moiety (q is 0) can be found *inter alia* in original claim 28. The glycopeptide-linker-crosslinker-carrier moiety (q is 1) finds support in Figure 16 and the specification, for example on page 86 lines 26-34, in the teachings that the glycopeptide (*e.g.*, the polycarbohydrate **54**) is conjugated to the carrier (*e.g.*, KLH) through a crosslinking agent (*e.g.*, the heterobifunctional reagent MBS). The specification specifies that the crosslinking agent crosslinks the KLH *N*-terminal and lysine side-chain amino groups (*e.g.*, a surface amine of the carrier) with the thiol group provided by the cysteine residue present on the peptide backbone (*e.g.*, a terminal thiol of the linker; See also Figure 16). Additionally, claim 62 and claims dependent thereon include the possibility that each occurrence of the carbohydrate domain A can be linked to the peptide backbone via the traditional linkage (n=0) or via n-alkyl, or combination thereof. Support for this language can be found on page 35 of the specification lines 12-15.

Claims 63, 64 and 65 further define structures for the linker and crosslinker (support for which can be found *inter alia* in original claim 28, on page 86 lines 26-34 of the specification and in Figure 16).

Support for claims 66 can be found *inter alia* in original claim 30.

Claims 67 and 68 find support in original claims 27 and 28 and in the specification, for example on page 33 lines 20-24, in the teachings that the multi-antigenic glycopeptides of the invention may comprise a peptidic backbone made up of at least three glycoaminoacids wherein one or more amino acids are substituted with an n-alkyl glycosidic moiety.

Support for claims 69, 72 and 73 can be found *inter alia* in original claims 29, 31 and 32, respectively.

Claims 74 and 75 find support in Figure 16 and on page 86 lines 26-34 of the specification.

Claims 69 and 74 encompass glycopeptides wherein the glycosidic moiety A can be STN. Support for such language can be found, for example, on page 35 lines 15-17 and on page 38 lines 15-17 of the specification.

Claims 76-98 are pharmaceutical composition claims corresponding in scope to the compounds and/or constructs of claims 56-75, and find support in original claim 39 and in the specification (for example, on pages 38-44).

Applicants respectfully submit that no new matter is added with these additions.

Information Disclosure:

Applicants have provided herewith a copy of PTO-1449 and an information disclosure statement citing two journal articles (See, Zhang *et al. Cancer Res.* **1995**, *55*, 3364-3368 and Toyokuni *et al. Bioorg. Med. Chem.* **1994**, *2*, 1119-1132), and two U.S. patents (See U.S. Patent Nos.: 6,222,020 and 5,683,674), copies of each of which are provided herewith. Applicants respectfully request that the Examiner consider each of the cited references.

Applicants would like to thank the Examiner for careful consideration of this case, and if it is believed that a telephone conversation would help clarify any issues, or help expedite prosecution of this case, Applicants invite the Examiner to contact the undersigned at (617) 248-5216.

Additionally, please charge the one month extension of time from March 12, 2002 up to and including April 12, 2002, (and any fees that may be required) or credit any overpayment to our Deposit Account 03-1721.

Respectfully submitted,

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Kathy Hart Hoagun

Marked-up Copy of Paragraph Replacements

1. ***Paragraph***

(i) on page 6 starting at line 12 and ending at line 20;and

(ii) on page 28 starting at line 22 and ending at line 3:

In certain preferred embodiments of the present invention, R is allyl, n is 2 and thus the inventive compound is a n-pentenyl moiety. In certain other embodiments of the present invention, R is NHR'", and the protein R'" is KLH or Bovine [Serine] Serum Albumin. In still other embodiments of the present invention, R is NHR'", and the lipid R'" is PamCys. It will be appreciated that the protein or lipid can be linked to N directly or through a crosslinker, and thus R'" incorporates proteins, peptides, and lipids, as well as (crosslinker-protein), (crosslinker-peptide) and (crosslinker-lipid) moieties. In certain preferred embodiments, the crosslinker is MMCCH (4-(maleimidomethyl) cyclohexane-1-carboxyl hydrazide).

2. ***Paragraph on page 39 starting at line 11 and ending at line 22:***

This method of treatment comprises administering to the subject a therapeutically effective amount of any of the glyconjugates disclosed herein, optionally in combination with a pharmaceutically acceptable carrier. The method may be applied wherein the cancer is a solid tumor or an epithelial tumor. As mentioned above, methods for the treatment of cancer (preferably for the prevention of recurrence of cancer) are provided, as well as methods for inducing antibodies in a human subject, wherein the antibodies are capable of specifically binding with human tumor cells, which comprises administering to the subject an amount of any of the glycoconjugates disclosed above effective to induce antibodies. In certain embodiments, the carbohydrate antigen is linked to an effective carrier either directly or through a crosslinker, which carrier is a protein or lipid. In certain embodiments, the carrier protein is bovine [serine] serum albumin, polylysine or KLH. In certain other embodiments, the lipid is PamCys.

3. ***Paragraph on page 43 starting at line 17 and ending at line 24:***

wherein n is 0-8; wherein the carrier is a protein or lipid, including, but not limited to Bovine [Serine] Serum Albumin, KLH and PamCys, wherein said protein or lipid is linked directly or though a crosslinker; and wherein m is in the range of 20-600. In certain preferred

embodiments, n is 4. In certain other embodiments, m is in the range of 200-600. In still other preferred embodiments, the carbohydrate determinant is selected from the group consisting of Globo-H, KH-1, glycophorin, STN, (2,3)ST, N3, Tn, TF, 2,6-STn, and Le^y. In yet other preferred embodiments, the carbohydrate determinant is fucosyl GM1, which has the structure as depicted above, and as shown in Figure 1.